CPD-accredited lecture:

Lining Systems incorporating Geosynthetic Clay Liners (GCLs)

Geosynthetic Clay Liners are low-permeability water and gas barriers which use natural Sodium bentonite (montmorillonite clay) as the impervious (typically $\pm 10^{-9}$ cm/s) constituent, contained within layers of geosynthetics. Typical applications include landfill lining and capping projects, raw water and sewerage containments, and ornamental water features. Geomembrane linings will also be discussed. The subject matter will thus be of interest to any designer involved with the containment of water or effluent.

This illustrated introduction is intended as a follow-on lecture to the initial "***Introduction to Geosynthetics***" lecture (which we recommend should precede this lecture) and concentrates on basic design concepts around how GCLs behave in lining applications. These SAICE CPD-accredited lectures are presented free of charge to professionals in the engineering field.

CPD Credits 0.2 (two hours) apply for ECSA registered persons.

An attendance certificate will be issued to each delegate.

This can be used to motivate corporate Skills Development Levy (SDL) Refund Claims.

PROGRAMME

± 2 hours with one 10-minute break

1. **What is a GCL?** – Definition and typical construction details.
2. The origins and properties of bentonite.
3. **Equivalency:** GCLs vs. compacted clay liners (CCLs).
4. GCLs and the DEA Requirements for Landfill Liners (including the new lining layouts published on 23 August 2013 as *"National Norms and Standards for Disposal of Waste to Landfill"*)
5. The economics of GCLs vs. CCLs.
6. **Working with GCLs and Geomembranes:** Installation issues: Practicality of GCLs vs. CCLs.
7. *'Composite Linings'* and '*Intimate Contact'* explained.
8. Chemical compatibility of GCLs.
9. Landfill Capping, cation exchange and other issues.
10. Discussion

The lecture(s) can be presented at your premises or Kaytech's in Johannesburg (Isandovale), Cape Town (Stikland), East London, Port Elizabeth, & Durban (Pinetown).

Course Presenter

Peter Davies

MIGS · MGIGSA · SFIWMSA · MSANCOLD · MIAIAsa

Peter works for the Kaymac Group (founded 1945) and is based at Kaytech's head office in Pinetown, Kwazulu-Natal, in South Africa. Here, he serves as Senior Consultant: Geosynthetic Applications. He has been involved in geotechnical engineering and geosynthetics for over 50 years.

- In 2014 he was appointed honorary *Technical Advisor* to the South African Institute of Waste Management (IWMSA).

- He is a Senior Fellow of, and has served two-year terms each, as National Secretary, Vice President and President of the South African Institute of Waste Management (IWMSA). Here, he has represented the Institute on a number of waste-related initiatives, including the steering committee for all editions of the *Minimum Requirements for Waste Management Facilities* document. He has served on the Project Steering Committee and the Specialist Working Group engaged in landfill design requirements, in particular in updating the section on Geosynthetic Clay Liners. He is a committee member of the IWMSA KZ-N Branch Landfill Interest Group (LIG) and has served as its Vice Chairman and Chairman.

- He is an honorary life member, and has been the Vice-President and newsletter editor of GIGSA, the Geosynthetics Interest Group of South Africa, which is affiliated to the South African Institution of Civil Engineers and is the local chapter of the International Geosynthetics Society (IGS). He was the Technical Chair of the IGS/GIGSA GeoAfrica 2009 conference held in Cape Town over 2 – 5 September 2009. This was the first IGS Regional conference to be held in Africa.

Peter has authored, and co-authored, numerous peer-reviewed technical papers on a wide range of geosynthetics topics, presented at a number of South African and international conferences.

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